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evidence from luxury restaurants in Taiwan

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Published in:
International Journal of Contemporary Hospitality Management

DOI:
[10.1108/IJCHM-11-2019-0933](https://doi.org/10.1108/IJCHM-11-2019-0933)

Publication date:
2020

Document Version
Author accepted manuscript

[Link to publication in ResearchOnline](#)

Citation for published version (Harvard):
Peng, N 2020, 'Luxury restaurants' risks when implementing new environmentally friendly programs: evidence from luxury restaurants in Taiwan', *International Journal of Contemporary Hospitality Management*, vol. 32, no. 7, pp. 2409-2427. <https://doi.org/10.1108/IJCHM-11-2019-0933>

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LUXURY RESTAURANTS' RISKS WHEN IMPLEMENTING NEW ENVIRONMENTALLY FRIENDLY PROGRAMS—EVIDENCE FROM LUXURY RESTAURANTS IN TAIWAN

Abstract

Purpose: Some luxury restaurants might be hesitant to adopt new environmentally friendly initiatives due to worries that consumers might have concerns about how these changes might affect them. The purpose of this study is to investigate consumers' intentions to dine at luxury restaurants when new environmentally friendly practices are implemented, considering the influence of trust and perceived risks.

Design/methodology/approach: Building on information integration theory and protection motivation theory, this research proposes its model and hypotheses. To test the proposed hypotheses, 441 participants were recruited through a nonprobability purposive sampling method.

Findings: The results show that perceived risks (i.e., perceived functional risk, perceived financial risk, perceived hedonic risk, and perceived self-image risk) significantly affect consumers' consumption intentions. Furthermore, consumers' trust in luxury restaurants will partially moderate the effects of perceived risks on consumption intentions.

Practical implications: This study offers empirical support for the proposition that implementing new environmentally friendly practices can affect consumers' dining intentions in a negative way. Suggestions on how to mitigate the effect of perceived risks are discussed.

Originality/value: The results of this research contribute to the hospitality literature in three ways. First, this study is one of the few to report that luxury restaurants should take consumers' perceptions of risk into account before initiating new environmentally friendly procedures. Second, it confirms that perceived risks will lower consumers' luxury restaurant consumption intentions. Third, consumers' trust in luxury restaurants can partially moderate the influences of perceived risks on consumption intentions.

Keywords: perceived risks, trust, environmentally friendly practices, protection motivation theory, information integration theory

Introduction

One of the main challenges for hospitality service providers when implementing environmentally friendly initiatives is overcoming consumers' skepticism, as the public has become more aware and critical of some organizations' greenwashing propensities since the 2010s (Rahman *et al.*, 2015). Parguel *et al.* (2011) define greenwashing as the act of misleading consumers regarding an organization's environmental and sustainability practices and/or a product's contributions to the environment (Parguel *et al.*, 2011). An example of this practice is restaurants claiming that their paper straws are eco-friendly but later admitting that they cannot be recycled (BBC, 2019). Greenwashing as an act confuses consumers when they consider products and negatively affects their confidence when organizations adopt environmentally friendly practices for genuine reasons (Chen and Chang, 2013). Chen and Chang (2013) point out that cynicism about greenwashing can lead consumers to stop buying environmentally friendly products altogether.

Restaurants can have significant impacts on the natural environment; therefore, researchers, policymakers, and practitioners have paid additional attention to restaurants' environmentally friendly initiatives (Jang *et al.*, 2011; Namkung and Jang, 2017). Although progress has been made, some restaurateurs remain uncertain about whether they should highlight their environmentally friendly programs to consumers because they are unsure how consumers will interpret and react to these initiatives (Cervellon, 2013; Kang *et al.*, 2012). This concern is particularly relevant in the luxury restaurant sector. Based on the research of Chen and Peng (2018), a luxury restaurant is exclusive and superior in quality, provides excellent service and symbolizes the wealth and status of its customers. Some of the practices that have helped restaurateurs achieve their luxury status have a negative influence on the natural environment, such as throwing away edible ingredients due to slight cosmetic imperfections (Cervellon, 2013; Kang *et al.*, 2012; Line and Hanks, 2016). Furthermore, the

global luxury hospitality services industry, including luxury restaurants, has the third largest market share in the worldwide luxury product industry, behind personal luxury goods and luxury cars (Bain & Company, 2018).

On the other hand, luxury hospitality service providers have more incentives than before to operate sustainably. First, some consumer segments, such as young consumers, have begun to demand more environmentally friendly travel and dining options (Jang *et al.*, 2011; Namkung and Jang, 2017; Lee, 2017; Townsend, 2018). Second, some environmentally friendly programs can now reduce restaurants' operating costs and can even generate revenues because of government incentives and technological advances (Perramon *et al.*, 2014). An example of these programs would be developing a sustainable menu using locally sourced/grown ingredients and implementing food waste reduction programs (Hanson and Mitchell, 2017; Kumar and Polonsky, 2017). Studying 700 companies, Hanson and Mitchell (2017) show that for every US\$1 (all monetary figures in this paper are in USD) invested in food waste reduction programs, companies can save an average of US\$14. Third, more members of the public are willing to protest business establishments if they believe that these organizations are negatively affecting the natural environment; therefore, operating in a more sustainable way can act as a reputational firewall for luxury restaurants (Cervellon, 2013).

Key research issues

Some research has attempted to examine the hospitality industry's potential influence on the natural environment and how consumers perceive restaurants' environmentally friendly practices (Ponnepureddy *et al.*, 2017); nonetheless, gaps in the current sustainability and luxury product consumption literature still exist. First, few studies have investigated the

influences of new environmentally friendly practices on consumers' perception of luxury hospitality service providers by applying existing theories. Costly signaling theory, which has been invoked in some studies that have investigated consumers' green product purchasing behavior, is considered important because it explains why some consumers are willing to pay premium prices for green products (Berger, 2019; Griskevicius *et al.*, 2010). Nevertheless, its applicability to the luxury service product consumption scenario remains to be investigated (Berger, 2019).

Initiating new green procedures can be a change that causes uncertainty for hospitality service providers and their customers (Yeh *et al.*, 2017). Adopting new environmentally friendly practices often requires restaurants to adjust their service levels and appearance (Kang *et al.*, 2012; Rahman *et al.*, 2015). Because of the service products' characteristics, consumers might not fully understand how some of these changes will impact their experiences. Some consumers might change their luxury restaurant consumption intentions due to this uncertainty. Additional research on how consumers' perceptions of luxury restaurants' environmentally friendly initiatives might affect their dining intentions can benefit the literature on sustainability and luxury hospitality services.

Second, when purchasing luxury products, consumers weigh the value and risks of their purchases before making a decision (Wiedmann *et al.*, 2009). Existing research on luxury product consumption has tended to examine consumers' perception of the value of these products, such as superior quality, more thoroughly. However, consumers' perceptions of the risks of luxury products have sometimes been overlooked (Peng and Chen, 2019). Because of the nature of services, such as their intangibility and variability, perceived risks can be an influential factor that should be considered when examining consumers' luxury service product purchase decisions (Chang and Ko, 2017). Furthermore, previous researchers have examined the influences of risk perceptions by primarily focusing on the consumer's

overall perceived risk (e.g., Deng and Ritchie, 2018; Sohn *et al.*, 2016). This method might not be sufficiently comprehensive, as risks differ and their influences on individuals might vary (Aghekyan-Simonian *et al.*, 2012; Chang and Ko, 2017). An exploration of the impact of different dimensions of perceived risks on consumers' luxury restaurant consumption intentions when restaurants implement new environmentally friendly practices can contribute to the literature on sustainability and luxury service product consumption.

Third, researchers have suggested that trust is a key factor that can help consumers overcome the uncertainty associated with making a purchase decision, such as buying products from online vendors (Hong and Cha, 2013). In addition, trust is a determinant of consumers' support for environmentally friendly products and practices (Bonn *et al.*, 2016; Chen and Chang, 2013; Ponnepureddy *et al.*, 2017). As consumers are more aware and critical of organizations' greenwashing tendencies, this factor could be particularly relevant when investigating consumers' perceptions of luxury restaurants' environmentally friendly initiatives and how these perceptions affect their purchase decisions. However, this factor's effects on tourists' purchase decisions are relatively unexplored (Ponnepureddy *et al.*, 2017). Additional research on the influences of trust may provide implications for policymakers and practitioners.

Research purposes and intend contributions

The purpose of this study is to investigate consumers' intentions to dine at luxury restaurants when new environmentally friendly practices are implemented. The research aims to contribute to the existing literature and theory in three ways. First, by considering existing theories relating to green product consumption behavior and luxury restaurant dining behavior, it provides a framework for examining consumers' intentions to dine at luxury

restaurants when these restaurants implement new environmentally friendly practices. Second, it tests the effect of perceived risks (i.e., perceived functional risk, perceived hedonic risk, perceived financial risk, and perceived self-image risk) on consumers' luxury restaurant consumption intentions. Third, it examines the ability of trust in luxury restaurants to moderate the relationships between perceived risks and consumption intentions.

Literature Review

Green consumers' characteristics

Green consumers' characteristics and behavior began to attract the attention of researchers, policymakers, and practitioners since the 1960s (Kumar and Polonsky, 2017; Roberts, 1996). Among the studies on green consumers, some argue that sociodemographic characteristics are one of the most influential factors that can predict pro-environmental behavior (Chekima *et al.*, 2016; Panzone *et al.*, 2016). Green consumers tend to be better educated, have a higher income, and hold a higher occupational and socioeconomic status (Chekima *et al.*, 2016; Panzone *et al.*, 2016). Because younger consumers and consumers with higher educational levels have been an important force in the consumption of green products and in influencing the public's perception of green products, the present research will focus on their perception of luxury restaurants' green initiatives. If consumers who have been supportive of green products find luxury restaurants' green initiatives are risk-free or at least that the associated risk is low enough to be acceptable by them, it might be even more challenging to persuade other consumers that luxury restaurants can be both a luxury and environmentally sustainable.

Characteristics of Taiwanese consumers

This research focuses on Taiwanese luxury restaurant consumers' perception of luxury restaurants when new green initiatives are implemented. There is little research that has investigated this context; however, there are studies related to Taiwanese consumers' luxury service product consumption behavior and their green product consumption behavior. Taiwanese consumers, especially younger consumers and individuals with higher educational levels, have shown that they are enthusiastic about consuming luxury services, such as hotel stays and restaurants (e.g., Chen and Peng, 2018; Peng and Chen, 2019). The results of such studies have generally shown that Taiwanese consumers purchase these services because of their superior quality, value for money, and ability to bring pleasure and status.

Taiwanese consumers have also showed familiarity with and support for green hospitality products (Chen and Tung, 2014; Peng and Chen, 2019; Teng *et al.* 2013). The studies by Chen and Tung (2014) and Teng *et al.* (2013) generally find that young, female, and educated Taiwanese consumers' intentions to stay at green hotels can be positively influenced by their attitude and peers. In a worldwide survey of 127 countries carried out by Gallup Polls between 2007 and 2008 (Pelham, 2009), Taiwanese respondents ranked 19th in terms of their self-perceived knowledge of global warming and 25th in terms of acknowledging that global warming is caused by human activity.

Overarching theories

Costly signally theory is useful to explain some consumers' green product purchasing behavior (Berger, 2019; Griskevicius *et al.*, 2010). In their work, Griskevicius *et al.* (2010) suggested that some university students purchase green products to improve their social status and self-image. Similarly, the student participants in Berger's (2019) research demonstrated their willingness to pay for green products when the product choice is public rather than

private. In other words, some consumers use green products to elevate/signal their social image and status. Although costly signaling theory has been used to explain consumers' green product purchasing behavior, it might not be the most suitable theory for the present research. For consumers who want to signal and/or elevate their social images through purchasing green luxury products, dining services might offer a less suitable medium than goods because dining experiences are intangible, only last a couple of hours, and are not entirely public (Chen and Peng, 2018; Yang and Mattila, 2016).

In the context of this research, information integration theory and protection motivation theory are useful for examining the effect of perceived risks on consumers' intentions to dine in luxury restaurants. Protection motivation theory studies the likelihood with which a person will engage in protective behavior when making decisions that have uncertain or risky outcomes, such as whether to travel to tourism destinations with high crime rates (Roger, 1975; Wong and Yeh, 2009). When a decision outcome is perceived as highly uncertain or risky, individuals are likely to change their decisions, for example, by buying from alternative brands, to protect themselves (Wong and Yeh, 2009). Protection motivation theory has been gradually applied to tourism and hospitality studies because individuals' perceptions of the safety and risks of a destination or a restaurant often affect their decision outcomes (Wong and Yeh, 2009).

Information integration theory, which is rooted in the study of psychology, proposes that individuals form their judgments and decisions by integrating information from multiple sources (Anderson, 1981; Wong and Yeh, 2009). Furthermore, it assumes that an acceptable level of perceived fit—including the product, brand, and attributes—must exist within a brand to generate a positive evaluation from consumers (Schmitt, 2012). The concept of information integration theory has been applied to consumer behavior research. For example, researchers have shown that tourists will evaluate a destination from different perspectives

before formulating an overall image perception, which could have a direct impact on their subsequent visiting decisions (Hallmann *et al.*, 2013; Wong and Yeh, 2009).

Protection motivation theory and information integration theory are appropriate for the present study because adopting new environmentally friendly practices could affect luxury restaurants in multiple areas. Consumers might be uncertain about whether these restaurants remain unique, superior in quality, and worth the high price once these environmentally friendly practices are implemented. For this reason, consumers will likely assess the different types of risks associated with dining at luxury restaurants that have implemented new environmentally friendly practices and make decisions that protect themselves if they have concerns.

Perceived risks

To examine consumers' assessments of luxury restaurants when these restaurants implement new environmentally friendly practices, this research investigates consumers' perceptions of risks. In the consumer research literature, perceived risk refers to individuals' perceived uncertainties regarding the adverse outcomes related to a purchase decision (Chen and Chang, 2012). The effect of perceived risk is particularly noticeable when consumers have insufficient information about the product and/or seller (Aghekyan-Simonian *et al.*, 2012; Chen and Chang, 2012). In addition, perceived risk is essential when researching consumers' luxury restaurant consumption behaviors (Chang and Ko, 2017; Peng and Chen, 2019). Consumers' purchase intentions are often affected by luxury service or product providers' abilities to lower the perceived risks of their services or products (Chang and Ko, 2017).

Scholars have proposed that the unique characteristics of luxury service products relative to nonluxury service products must be considered when evaluating luxury service

products' value and risks (Chang and Ko, 2017; Chen and Peng, 2018; Yang and Mattila, 2016). Because Chang and Ko's (2017) research context was luxury hospitality services, this research adopts their perceived risk dimensions to examine luxury restaurants' perceived risks. Chang and Ko (2017) propose that luxury service products have four types of perceived risk: perceived functional risk, perceived financial risk, perceived hedonic risk, and perceived self-image risk. To measure perceived financial risk, this study examines consumers' perceptions of whether dining at luxury restaurants that adopt new environmentally friendly programs is worth the money (Wiedmann *et al.*, 2009). Functional risk is referred to as the perceived risk that dining at luxury restaurants after they implement new sustainable initiatives might fail to provide superior quality (Chang and Ko, 2017). Hedonic risk is defined as consumers' perceptions of whether dining at luxury restaurants that adopt new environmentally friendly practices can offer a sense of excitement and joyfulness (Yang and Mattila, 2016). Self-image risk relates to potential consumers' perceived risk that dining at luxury restaurants that have adopted new environmentally friendly practices will not give consumers status (Chang and Ko, 2017). Regarding the effect of perceived risks, this research focuses on consumers' luxury restaurant consumption intentions, which are represented by consumers' desire to dine at luxury restaurants (Chen and Peng, 2018).

Trust

Finally, research has shown that perceived risk may cause an individual to have lower intentions to purchase, but the literature has also shown that having high trust in service providers could reduce the perceived risks of green products (Chen and Chang, 2012; 2013; Hong and Cha, 2013; Ponnepureddy *et al.*, 2017). In this research, trust is defined as the willingness of a consumer to be vulnerable to the actions of luxury restaurants (i.e.,

implementing new environmentally friendly practices) based on the expectation that restaurant staff will perform actions that are important to restaurant customers (e.g., maintaining quality and standards), irrespective of customers' abilities to monitor or control restaurateurs (Hong and Cha, 2013).

Because consumers have a limited or no opportunity to sample luxury restaurant services in advance and because implementing new environmentally friendly practices often requires restaurants to change their current practices or offers, luxury restaurants might need consumers to trust that their standards and value will not be negatively affected as a result of implementing new environmentally friendly practices. Due to consumers' increasing skepticism toward greenwashing, trust has been applied to study green hotels and hospitality service providers' environmentally friendly practices (Line and Hanks, 2016; Rahman *et al.*, 2015); however, the question of whether trust in luxury restaurants can offset the effect of perceived risk on consumers' luxury restaurant consumption intentions remains to be explored.

Research Framework and Hypotheses

Pursuant to the literature reviewed above, a research framework for this study is proposed (Figure 1). The first hypothesis to be tested is the effect of perceived functional risk on luxury restaurant consumers' consumption intentions. A key feature of luxury products is their superior quality compared to nonluxury products (Berthon *et al.*, 2009; Chen and Peng, 2018). Sometimes, luxury restaurants must change their procedures and offerings when implementing new green practices, such as having a less diverse range of dishes when a restaurant uses only in-season, locally sourced ingredients (Kumar and Polonsky, 2017). One of consumers' main worries when luxury brands attempt to operate in a more sustainable way

is that the quality of the product may no longer be superior to that of nonluxury products or to that of other luxury product providers (Cervellon, 2013); therefore, consumers' intentions to dine at luxury restaurants might be lowered if they perceive that luxury restaurants will no longer have superior quality once new environmentally friendly practices are implemented. The following hypothesis is proposed (H1):

H1: Perceived functional risk has a negative effect on consumers' luxury restaurant consumption intentions if luxury restaurants implement new environmentally friendly practices.

The second hypothesis to be tested is the effect of perceived financial risk on consumers' intentions to dine at luxury restaurants. One reason some green products fail is because they see purchasing green products and services as financially risky decisions (Ponnappureddy *et al.*, 2017; Rahman *et al.*, 2015). Luxury restaurants are generally more expensive than nonluxury restaurants (Naylor, 2013). However, they rationalize the additional cost because luxury products can be a long-term investment and/or money well spent (Yang and Mattilia, 2016). Luxury restaurants might not be perceived as providing value for money compared to nonluxury restaurants if consumers have concerns about the new environmentally friendly practices that luxury restaurants implemented, such as when restaurants stop providing paper hand towels in their bathrooms (Subramanian, 2019). Thus, this study proposes the following hypothesis (H2):

H2: Perceived financial risk has a negative effect on consumers' luxury restaurant consumption intentions if luxury restaurants implement new environmentally

friendly practices.

The third relationship this study examines is the effect of perceived hedonic risk on consumers' consumption intentions. Consumers often purchase luxury products because of these products' abilities to bring joy and provide a sense of pleasure to their owners or users (Berthon *et al.*, 2009; Yang and Mattilia, 2016). To ensure that their customers feel a sense of enjoyment and self-indulgence, luxury restaurants often go the extra mile to provide enjoyment for their customers through various methods (Chen and Peng, 2018). However, some of these practices might not be environmentally friendly. For example, most customers do not eat garnish, but restaurants still use garnish for decorative purposes because some customers find using garnish can bring joy and provide a sense of pleasure to them (Alarcón, 2019). Based on the above discussion, when luxury restaurants implement new environmentally friendly practices, some might worry that these restaurants have lost their abilities to stimulate pleasure and excitement. The following hypothesis is proposed (H3):

H3: Perceived hedonic risk has a negative effect on consumers' luxury restaurant consumption intentions if luxury restaurants implement new environmentally friendly practices.

The fourth hypothesis tests the impact of perceived self-image risk on consumers' luxury restaurant consumption intentions. Luxury restaurants often employ multiple methods to assist their customers in sustaining and enhancing their self-image; for example, some luxury restaurants have a lavish waiting area filled with striking decorations (Chen and Peng, 2018). In implementing new environmentally friendly practices, service providers sometimes

must renovate their infrastructures, such as using a more energy-efficient but less esthetically appealing lighting system instead of a conspicuous but less energy-efficient system (Weiss and Poppick, 2016). Some environmentally friendly initiatives, such as a more energy-efficient but less esthetically appealing lighting system, might lead consumers who use luxury restaurants to signal, sustain, and enhance their self-image to have lower consumption intentions. Thus, the following hypothesis will be examined (H4):

H4: Perceived self-image risk has a negative effect on consumers' luxury restaurant consumption intentions if luxury restaurants implement new environmentally friendly practices.

The fifth hypothesis of this study investigates the ability of trust in luxury restaurants to moderate the influences of perceived risks on consumers' intentions to dine at luxury restaurants. Trust is important for green products and green companies because consumers need to believe that organizations will behave in a favorable manner or will not harm them when environmentally friendly practices are implemented (Morgan and Hunt, 1994; Ponnepureddy *et al.*, 2017; Teng *et al.*, 2013). Luxury restaurants adopting new environmentally friendly practices can be perceived as risky by consumers who wish to dine at such restaurants. This perception arises because the meanings and offers of these restaurants might be altered as a result of these changes (Cervellon, 2013; Kang *et al.*, 2012). When consumers make a risky decision, such as dining at luxury restaurants that implement new green practices, they are likely to lower their consumption intentions. However, if consumers have more trust in luxury restaurants in terms of their desire to protect the environment by implementing new environmentally friendly practices, the perceived risks

associated with dining at luxury restaurants will have a weaker influence on consumers' intentions to purchase than when they have less trust in luxury restaurants. Thus, hypothesis H5 is proposed:

H5: Consumers' trust in luxury restaurants will moderate the negative effect of perceived risks (i.e., 5a. perceived functional risk, 5b. perceived financial risk, 5c. perceived hedonic risk, and 5d. perceived self-image risk) on their luxury restaurant consumption intentions.

*Figure 1 about here

Research Method

Sampling and data collection methods

A list that contained five categories of restaurant green practices (i.e., recycling and composting, energy and water-efficient equipment, eco-friendly cleaning supplies, serving ware and packaging, and menu sustainability) and associated examples was submitted for review by five hospitality scholars who are knowledgeable about sustainability research and/or luxury product consumption studies (Jeong and Jang, 2010). Based on the experts' review, these five categories and their associated examples were generally considered suitable for this.

For the main study, Taiwanese luxury restaurant consumers were recruited to examine the proposed framework. Based on the works by Chen and Peng (2018), Chen and Tung (2014), and Teng *et al.* (2013), Taiwanese consumers have some opportunities to encounter

luxury restaurants that are implementing new environmentally friendly practices. Trained research assistants were used to collect the data. To obtain the data, a purposive sampling technique was used. The research assistants approached individuals who were about to enter or leave a luxury restaurant in Taiwan's four largest cities—Taipei City, New Taipei City, Taichung City, or Kaohsiung City—using an interception technique. To qualify for participation in this study, they needed 1) to be over the age of 18 years and 2) to have dined at luxury restaurants for leisure purposes within the previous six months. The survey was administered to individuals who passed the screening process. During the ten-week data-collection period, 441 usable questionnaires were collected. The effective return rate was 78%.

Three steps were taken to ensure that the participants understood the research context. First, before the survey began, research assistants emphasized to the potential participants that the research concerns consumers' perception of risk in relation to the new environmentally friendly programs implemented by luxury restaurants and not their risk perception of luxury restaurants in general. Second, a description of luxury restaurants adapted from Chen and Peng (2018) and examples of luxury restaurants (Yang and Mattila, 2016) were provided to the participants prior to survey completion. Third, a description of green restaurants and examples of environmentally friendly practices were provided to the participants prior to completing the questionnaire (Jang *et al.*, 2011).

The demographic profile of the sample is presented in Table 1. The sample of this study was somewhat consistent with the results of previous studies on likely consumers of green products (e.g., Chekima *et al.*, 2016; Panzone *et al.*, 2016). Furthermore, it can be considered suitable because restaurants' sustainable initiatives can be costly at first; therefore, restaurateurs might have to target consumers who are more likely to support green initiatives and use them to affect other consumer segments.

*Table 1 about here

Questionnaire design

The first section of the questionnaire used in this research collected the participants' demographic information. The second section included 20 statements about luxury restaurants' perceived functional risk, perceived financial risk, perceived hedonic risk, perceived self-image risk, trust in luxury restaurants, and luxury restaurant consumption intentions. These statements were generated from a review of the previous luxury product consumption literature and studies on sustainability. To design the items, a seven-point Likert-type scale was used. The items for each variable can be found in Table 2. According to the assessment of normality, the data were within the acceptable range to be considered normally distributed (Curran *et al.*, 1996).

*Table 2 about here

Data Analysis and Results

Model measurement

IBM SPSS Statistics 25 and IBM SPSS AMOS 25 were used to examine the data. A two-step structural equation modeling (SEM) approach was used for the data analysis (Anderson and Gerbing, 1988). The findings demonstrated that the items used in this study can be considered reliable (Fornell and Larcker, 1981). Because all the constructs had Cronbach's alphas and composite reliabilities higher than the recommended threshold of 0.7, construct reliability

was supported (Hair *et al.*, 2012). The average variance extracted (AVE) was used to test convergent validity. The AVE values ranged from 0.52 to 0.83, as shown in Table 3; therefore, convergent validity was confirmed (Fornell and Larcker, 1981). To test discriminant validity, this study compared the AVE for each individual construct with the shared variances between this individual construct and all of the other constructs. Discriminant validity was established because the AVE value for each construct was greater than the squared correlation between the constructs. A common latent factor (CLF) method and a marker variable technique were employed to check for common method bias (Craighead *et al.*, 2011; Podsakoff *et al.*, 2003). The findings obtained through these tests indicate that the relationships included in this study's model were unlikely to be inflated due to common method bias.

*Table 3 about here.

Structural model

The structural model was tested after the overall measurement model was found to be acceptable. The model fit was good ($\chi^2/df=2.44$; RMSEA=0.056; CFI=0.978; GFI=0.947; NFI=0.964). H1 was supported ($t=-2.64$; $\beta=-0.21$; $p<0.01$) because luxury restaurants' perceived functional risk had a negative impact on consumers' luxury restaurant consumption intentions. H2 was supported ($t=-0.53$; $\beta=-7.70$; $p<0.001$), as perceived financial risk had a negative impact on consumers' consumption intentions. H3 was supported ($t=-0.45$; $\beta=-5.24$; $p<0.001$), suggesting that perceived hedonic risk significantly affects consumers' consumption intentions. H4 posited that perceived self-image risk negatively influences

consumers' consumption intentions, and the results obtained from the analysis supported this hypothesis ($t=-0.21$; $\beta=-2.06$; $p<0.05$).

The moderating effect of trust (H5)

To examine the moderating effect of consumers' trust in luxury restaurants, a multigroup analysis was performed. The participants were divided into two groups, a high and a low luxury restaurant trust group, using means split before the analysis. The mean for the participants' luxury restaurant trust was 4.80 on a seven-point Likert-type scale. For this reason, those with means greater than or below 4.80 were categorized in the high or the low luxury restaurant trust group, respectively (N=220; N=221).

To examine the differential effect between the high and low luxury restaurant trust groups, this study followed Anderson and Gerbing's (1988) recommendation and examined the chi-square difference between the constrained and unconstrained models. All path coefficients in each group were freely estimated in the unconstrained model. In the constrained model, the path coefficients for the relationships between the perceived risk variables and consumption intentions were set equally across the two groups. The chi-square difference ($\Delta\text{chi-square}=33.68$, $\Delta\text{df}=13$) between the two models was significant ($p<0.05$). The findings showed that the high and low luxury restaurant trust groups were significantly different at the model level. To identify where significant differences appeared, coefficients for each path were compared between the high and low luxury restaurant trust groups. The test results showed that trust in luxury restaurants played a moderating role in the two hypothesized paths (i.e., trust in luxury restaurants). H5b and H5c). Based on the above analysis, H5 was partially supported (Table 4).

*Table 4 about here.

Conclusions

Discussion

The results of this study are generally aligned with information integration theory and protection motivation theory. Consumers of luxury restaurants form their evaluations and decisions by integrating information about luxury restaurants' perceived risks from multiple dimensions. In addition, consumers will engage in protective behavior by lowering their consumption intentions when luxury restaurants' green initiatives are perceived as risky for their experiences. The results of this research also contribute to the literature on luxury service product consumption and research on sustainability in several ways.

First, this study is one of the few to report that consumers will lower their intentions to dine at luxury restaurants if they implement new environmentally friendly practices. Consumers will perceive dining at luxury restaurants as risky because they might no longer offer top quality food ingredients, enhance consumers' self-image, inspire a sense of joyfulness, and/or be considered a sensible purchase decision. Consumers may be cautious when learning that luxury restaurants plan to implement new environmentally friendly practices because they cannot be certain if these restaurants sincerely care about the natural environment or if these practices are an excuse to lower the restaurants' standards and quality. This study adds new insights to sustainability research and luxury product consumption studies because the luxury hospitality sector has one of the largest market shares in the worldwide luxury product industry (Bain & Company, 2018).

Second, studies of luxury product consumption have emphasized these products' value as one of their key attributes, despite consumers' evaluations of the risks of luxury products

before making a purchase (Chen and Peng, 2018; Wiedmann *et al.*, 2009). This emphasis might be misplaced, as the effect of perceived risk is particularly apparent when buyers do not know enough about the product, such as dining at luxury restaurants that are implementing new practices (Aghekyan-Simonian *et al.*, 2012; Chen and Chang, 2012; Chang and Ko, 2017; Chen and Peng, 2018). Furthermore, existing research exploring the effect of risk perceptions has primarily focused on perceived overall risk (e.g., Deng and Ritchie, 2018; Sohn *et al.*, 2016). This method might not be adequate because risks differ and their effects on consumers might vary. By adopting Chang and Ko's (2017) perceived risk dimensions related to luxury service consumption, this study examines the risks associated with purchasing luxury service products. Its results confirm that luxury restaurant consumers will have lower consumption intentions if these restaurants are perceived as not worth the money, as inferior in quality, as being unable to support consumers' self-image, and/or as being unable to stimulate consumers' joyful emotions.

Third, the findings partially supported our hypothesis that consumers who have high luxury restaurant trust are different from consumers who have low luxury restaurant trust. The first significant difference between these two consumer types relates to the influence of perceived hedonic risk on consumption intentions. For consumers with high luxury restaurant trust, the influence of perceived hedonic risk on consumption intentions is not significant. This finding aligns with the suggestion of Bonn *et al.* (2016), Chen and Chang (2012; 2013), and Ponnepureddy *et al.* (2017) that trust is essential for consumers' support for green and organic products. If consumers believe that luxury restaurants will behave in a manner that is favorable to them when implementing new environmentally friendly practices, their luxury restaurant consumption intentions will not be lowered, even if they worry that their experience will be less indulgent than before. One explanation for this finding is that consumers may be supportive of restaurants' environmentally friendly practices. Consumers

simply need to trust that the restaurants they plan to visit are truly trying to protect the natural environment.

The second significant difference between these two groups of consumers lies in the effects of perceived financial risk on consumption intentions. One potential explanation for this finding is that consumers are aware that luxury restaurants and green products can be more expensive than their counterparts (Kang *et al.*, 2012). However, they may be willing to support socially responsible luxury service providers, even if they must make some financial sacrifices. The survival of green products and environmentally friendly practices is often dependent on consumers' support, which is an effect of trust.

The first insignificant difference between these two consumer types relates to the influence of perceived functional risk on consumption intentions. One possible explanation is that food and drinks are a restaurant's core product (Chen and Peng, 2018); therefore, consumers will have lower consumption intentions if they have concerns about the quality of these products. Previous studies have consistently confirmed restaurant core products' influences on diners' emotions, consumer intentions, and intentions to revisit (Chen and Peng, 2018; Yang and Mattila, 2016).

The second insignificant difference between consumers who have high luxury restaurant trust and consumers who have low luxury restaurant trust relates to the influence of perceived self-image risk on consumption intentions. It is worth noting that although there is no significant difference between the two groups on the statistical level, perceived self-image risk had a significant influence on consumption intentions for consumers who have high trust in luxury restaurants, but it had an insignificant effect on consumption intentions for consumers who have low trust in luxury restaurants. Consumers have become more aware and more critical of some organizations' greenwashing propensities (Rahman *et al.*, 2015). In

addition, in the case of nonedible green products, trustworthiness is a less influential factor in consumers' willingness to pay than in the case of edible green products (Berger, 2019). On the other hand, some consumer segments have begun to demand more environmentally friendly dining options (Jang *et al.*, 2011; Namkung and Jang, 2017). Moreover, some consumers are willing to pay more for green products as a means of elevating their image and status (Berger, 2019; Griskevicius *et al.*, 2010; Jang *et al.*, 2011; Namkung and Jang, 2017). Perhaps because of these sometimes conflicting developments, the two groups of consumers in this study evaluated the effect of perceived self-image risk on their consumption intentions differently based on their trust in luxury restaurants, but not in a significant way.

Fourth, by investigating consumers from Taiwan, this study might add new insight to the overall understanding of green product consumers. Although Taiwanese consumers have shown an awareness of and support for green products (Pelham, 2009), the participants of this research will still not be keen to visit luxury restaurants that implement environmentally friendly initiatives if they believe that there are more risks associated with their purchase. One possible explanation is that this study's participants are not particularly young. Previous studies on green consumers generally agree that young consumers tend to be more supportive of green products (Chekima *et al.*, 2016; Panzone *et al.*, 2016). In addition, previous studies have shown that Taiwanese consumers generally place great emphasis on dining and dining experiences (Yang and Khoo-Lattimore, 2015). Some Taiwanese consumers might have a low risk threshold with respect to luxury restaurants.

Practical implications

For practitioners working in the luxury hospitality sector, the findings of this research support the concern that adopting new or additional environmentally friendly practices can be risky

for their establishments. Luxury restaurants will likely lose some of their reservations if consumers become aware that new green practices will be initiated. However, the need for businesses to operate in a more sustainable way is slowly increasing (Cervellon, 2013; Lee, 2017; Perramon *et al.*, 2014).

Luxury restaurants wanting to implement environmentally friendly practices might want to start with programs that are mutually beneficial for customers and for the restaurant, for example, by using locally grown ingredients. Customers might be able to have fresh and seasonal dishes. Restaurants can gain better control over the products that they use in their kitchens. Additionally, this step can be good for the natural environment because it reduces the carbon dioxide (CO₂) emissions caused by logistics companies that transport products for restaurants. Moreover, luxury restaurants should begin implementing environmentally friendly practices in less noticeable areas, such as kitchens. Customers are unlikely to notice if a restaurant stops operating its kitchen's ventilation system at full capacity during less busy times. Finally, restaurateurs should first implement environmentally friendly practices that have a less direct impact on customers' experiences. An example would be to slightly adjust the air conditioner temperature. Changing the temperature by 1 degree Celsius is unlikely to be noticeable to diners; however, it could reduce the energy bill by almost 10% (Sustain, 2019).

If luxury restaurants believe customers have high trust in them, the following two adjustments to existing services and standards may be considered. First, restaurateurs can consider transferring some of the costs of adopting environmentally friendly practices to their customers. Second, practitioners could also evaluate how to support or enhance consumers' self-image in a more environmentally friendly way. For example, switching to LEDs from traditional lightbulbs will generally have little impact on restaurants' ability to let customers highlight their image and status. On the other hand, when implementing new environmentally

friendly practices, luxury restaurants must not be perceived as lowering their quality, and they must still be able to entertain and indulge their customers, even if their consumers have a high level of trust in them. For example, when sourcing ingredients from local suppliers, luxury restaurants have to ensure that these ingredients are as delicious as those from nonlocal suppliers (Torres, 2016). Another example would be instead of no longer using decorative ingredients, such as citrus, herbs, and garnishes; altogether, luxury restaurants could replace them with syrups, cordials, and leftover produce (Alarcón, 2019).

Given the challenges faced by luxury restaurants, policymakers might need to consider taking a more active role in helping luxury restaurants be more environmentally friendly. For example, some restaurants have modernized their windows and window frames to preserve heat more effectively. These installations can save energy, but they may also be expensive. Governments could consider subsidizing luxury restaurants that have opted for energy-saving windows and frames. Policymakers could also evaluate the possibility of promoting sector-wide self-regulation and collaboration for the adoption of environmentally friendly practices. For example, seventeen hotels in New York City, including luxury hotels, have jointly pledged to cut greenhouse gas emissions through multiple approaches (Vora, 2016). These collaborations and self-regulation approaches could be useful to luxury restaurants that operate in the same city, as these restaurants will be less concerned about losing their luxury image to their direct competitors when choosing to operate in a more sustainable way.

Finally, this study's findings might have implications for consumers, who are the end-users of luxury restaurants' products as well. First, consumers of luxury restaurants that implement new environmentally friendly programs should know that their worries are not unusual. Even consumers who have been supportive of green products still perceive dining at luxury restaurants that adopt new green initiatives as a risky consumption decision. Second,

using the results of this study, consumers might be able to identify the concerns that are the most relevant to them, depending on their personal circumstances and their level of trust in luxury restaurants. Third, once consumers' sources of concern are identified, they might be able to find environmentally friendly luxury restaurants that are suitable for them.

Limitations and future studies

Although this study makes some incremental contributions to the literature, it has several limitations. There are different types of luxury restaurants. Some might focus more on their heritage (e.g., The Ritz Restaurant at Ritz Carlton London, UK), while others might emphasize an innovative approach to customers' dining experiences (e.g., the Fat Duck, UK). This research did not consider how different types of luxury restaurants might affect customers' perception of risks when environmental practices are implemented. Future studies in luxury restaurant research might want to consider the effects of different restaurant types. Second, 58% of the participants in this study had a university degree or higher, and 59% were between 31 and 50 years old. It might be beneficial for the literature if future research can apply the framework of this study to other consumer segments, such as elderly consumers. Third, although the research assistants emphasized to participants that this study is designed to address consumers' perception of risk in relation to the new environmentally friendly programs implemented by luxury restaurants, some participants might have focused on restaurants' general risks. Future research on similar topics can include a control group as a benchmark to ensure that the participants fully understand the research topic.

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Table 1- Characteristics of the Participants (N=441)

| Variables | Demographic traits | % |
|--|------------------------------|----|
| Gender | Male | 46 |
| | Female | 54 |
| Respondent's age | Between 18-30 years old | 8 |
| | Between 31-40 years old | 27 |
| | Between 41-50 years old | 32 |
| | Between 51-60 years old | 22 |
| | 61 and above | 11 |
| Education | High school degree | 11 |
| | College degree | 31 |
| | University | 45 |
| | Postgraduate degree or above | 13 |
| | Very frequently | 22 |
| Luxury restaurant consumption frequency | Frequently | 24 |
| | Occasionally | 24 |
| | Rarely | 22 |
| | Very rarely | 8 |

Table 2. Measurement Items

| Variable/Adopted from | Measurement items | Mean | SD ¹ | FL ² |
|-----------------------------------|---|------|-----------------|-----------------|
| | If Luxury Restaurant X ³ implements new environmentally friendly practices, I am concerned: | | | |
| Perceived functional Risk (FuR) / | FuR1: about its maintenance. | 5.41 | 1.21 | .93 |
| Chang and Ko (2017) | FuR2: about its quality. | 5.33 | 1.27 | .91 |
| | FuR3: about its superiority to other restaurants. | 5.39 | 1.16 | .9 |
| Perceived self-image Risk (SR) | SR1: that it would not fit in with my self-image. | 5.31 | 1.1 | .83 |
| / | SR2: that it would not be approved by some people whose opinion I value. | 5.26 | 1.2 | .88 |
| Chang and Ko (2017) | SR3: that it would not give me status. | 5.25 | 1.16 | .86 |
| Perceived hedonic Risk (HR) / | HR1: that its aesthetic beauty may not be exactly what I pursue. | 4.57 | 1.47 | .90 |
| Chang and Ko (2017) | HR2: that it would not offer me excitement. | 4.58 | 1.26 | .89 |
| | HR3: That it is not enjoyable. | 4.43 | 1.31 | .89 |
| Perceived financial Risk (FiR) | FiR1: that I really would not get my money's worth from it. | 4.91 | 1.01 | .75 |
| / | FiR2: that it would be a bad way to spend my money on it. | 5.19 | 1.02 | .82 |
| Chang and Ko (2017) | FiR3: that the financial investment in it would not be wise. | 5.14 | 1.07 | .83 |
| | LT1: I suppose Luxury Restaurant X is socially responsible. | 4.35 | 1.78 | .83 |
| | LT2: I assume that Luxury Restaurant X is protecting the environment. | 4.71 | 1.8 | .74 |
| Luxury restaurant trust (LT) / | LT3: I assume that Luxury Restaurant X is following a long-term and farsighted corporate | 4.31 | 1.75 | .88 |
| Ponnapureddy <i>et al.</i> , 2017 | strategy. | | | |
| | LT4: I assume that Luxury Restaurant X generally acts in a sustainable way. | 5.56 | 1.45 | .91 |
| | LT5: In general, I trust that Luxury Restaurant X's services are verified by an independent third-party. | 5.07 | 1.57 | .86 |
| | CI1: I would like to dine at Luxury Restaurant X. | 2.72 | 1.33 | .82 |
| Consumption intentions (CI) / | CI2: I would like to recommend my friends and family to dine at Luxury Restaurant X. | 3.46 | 1.06 | .83 |
| Hong and Cha (2013) | CI3: If there is a luxury restaurant that I want to dine at, I would like to stay at Luxury Restaurant X. | 3.09 | 1.16 | .75 |

1. SD= Standard deviation
2. FL= factor loading
3. In the survey, “Luxury Restaurant X” is the restaurant respondent visited.

Table 3- Correlations and Descriptive Statistics

| | Mean | SD | CrA | CR | AVE | FuR | HR | FiR | SR | CI |
|------------|------|------|-----|-----|-----|------------|------------|------------|------------|------------|
| FuR | 5.37 | 1.21 | .93 | .93 | .84 | .91 | .50* | .60* | .70* | -.33* |
| HR | 4.53 | 1.35 | .93 | .92 | .81 | .52* | .90 | .58* | .51* | -.55* |
| FiR | 5.08 | 1.03 | .84 | .84 | .64 | .60* | .59* | .80 | .59* | -.58* |
| SR | 5.27 | 1.16 | .90 | .90 | .75 | .69* | .53* | .60* | .86 | -.35* |
| CI | 3.09 | 1.18 | .85 | .84 | .65 | -.34* | -.56* | -.60* | -.36* | .81 |
| MV | | | | | | .003 | .02 | .02 | .01 | .04 |

ˆBold numbers on the diagonal parentheses are square root of each construct’s AVE value

ˆCrA= Cronach’s Alphas; CR= Composite reliability; AVE= Average variance extracted

-FuR= Perceived functional risk; HR= Perceived hedonic risk; SR= Perceived self-image risk; FiR= Perceived financial Risk; CI= Consumption intentions

Table 4. Two group path model estimate (H5)

| Path estimated | Low luxury restaurant trust group | High luxury restaurant trust group | ($\Delta\chi^2$, $\Delta df=1$) | Moderating effect |
|----------------|-----------------------------------|------------------------------------|------------------------------------|-------------------|
| H5a: FuR → CI | -.22(-2.03)* | -.29(-3.70)** | -1.65 | Not significant |
| H5b: FiR → CI | -.45(-4.49)*** | -.15(-1.29) | 2.13 | Significant |
| H5c: HR → CI | -.40(-3.01)** | -.52(-4.69)*** | 4.21 | Significant |
| H5d: SR → CI | -.23(-2.04)* | -.24(-1.84) | 0.2 | Not significant |

Figure 1. Research Framework

